



Environmental Compliance

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GreenChill Partners Save Millions While Reducing Emissions

In less than one year, food retailers participating in the Environmental Protection Agency's GreenChill Advanced Refrigeration Partnership program have saved \$13 million while reducing carbon dioxide emissions by 2.5 million tons, an agency official said.

EPA launched the GreenChill program in November 2007 with 10 participants representing chemical refrigerant industries, refrigeration equipment manufacturers and suppliers, and supermarkets.

Today, the number of partners has expanded to nearly 40 with at least one inquiry each week from a potential new partner, according to Keilly Witman, who manages GreenChill in EPA's Stratospheric Protection Division.

The partnership promotes the use of practices, strategies, and technologies that reduce emissions of greenhouse gas and ozone-depleting substances while increasing refrigeration system energy efficiency.

Leak Rates Are Significant

GreenChill encourages the supermarket industry voluntarily to go above and beyond current regulatory requirements, Witman told BNA Nov. 3. She said it is estimated that 50 percent of a supermarket's carbon footprint comes from refrigeration. The average supermarket has 4,000 pounds of refrigerant, 25

percent of which leaks out, she added. With 35,000 supermarkets in the United States, EPA thought it was an industry ripe for nonregulatory environmental improvement.

GreenChill is building upon a growing focus in the supermarket industry on their contribution to environmental issues, Witman said.

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— KEILLY WITMAN,
EPA

“Customers want supermarkets to care about the communities in which they do business and that includes the environment,” Witman said. The supermarkets must set goals their customers expect them to reach, and GreenChill helps the supermarkets “quantify what they’ve done to achieve their goals.”

Specific steps GreenChill partners take include adoption of new refrigeration technologies and the transition to non-ozone-depleting refrigerants. The technologies provide improved system design, operation, and maintenance that extend the shelf life of perishable

foods while simultaneously reducing greenhouse gas emissions and ozone-depleting substances through reduced refrigerant charges and leak rates and reduced maintenance and refrigerant costs, according to EPA.

The end result is an overall reduction both in ozone-depleting substances and non-ozone-depleting substances refrigerant emissions, thus reducing the impacts of supermarkets on global warming and ozone depletion.

Most supermarkets use hydrochlorofluorocarbon-22, commonly called R-22, as a refrigerant. R-22 is being phased out under GreenChill and the Montreal Protocol. “The chemical manufacturers are helping EPA to phase out R-22 in advance of the deadline,” Witman said.

Leak-Tight Systems a Must

Whatever amount of refrigerant leaks out must be replaced, Witman said, and with conventional systems losing an average of 25 percent of their charge, the costs add up.

GreenChill partners use advanced refrigeration technologies that require the use of a smaller refrigerant charge than conventional systems. For example, Witman noted, compact chillers reduce to less than eight pounds per unit the amount of refrigerant to be used. As a result, the leaks are a lot less. Wit-

man said GreenChill partners have an average leak rate of 13.7 percent, which in 2007, equated to a \$13 million savings in operating costs.

She said critical to the success of any system modifications, though, is making sure leaks are minimized or eliminated. At installation, everything must be leak-tight, otherwise, regardless of what type of refrigerant used, it will go into the environment, she added.

Ongoing Reductions Sought

Moreover, she said, each year the partners set goals to further reduce emissions. Two partners, Giant Eagle and Harris Teeter, recently received

awards from EPA for achieving a 10 percent emission rate, which “while great, still leaves room for improvement.”

One unexpected and exciting result from the partnership has been the exchange of information, she continued. The supermarket industry traditionally has been hesitant to share information that could reveal trade secrets, she explained.

However, GreenChill has provided a venue for participants to work with each other. For example, when the awards to Giant Eagle and Harris Teeter were announced, other partners asked how those chains were able to reach the 10 percent level. EPA asked if the chains would be

willing to participate in a Webinar, and they agreed.

Their representatives explained what contributed to their reduction and “now some partners have changed their internal procedures based on what they learned during the Webinar,” she said.

“There now is a positive attitude toward sharing information,” Witman said.

BY ELIZABETH R. MANSFIELD

More information on EPA's Green-Chill Advanced Refrigeration Partnership is available on the Web at <http://www.epa.gov/greenchill/index.html>.